

Supporting Information

Galunisertib-Loaded Gelatin Methacryloyl Hydrogel Microneedle Patch for Cardiac Repair after Myocardial Infarction

HaitingChen,^{†,¶} LuFan,^{⊥,¶} NingxinPeng,^{‡,¶} YongYin,[†] DanMu,[#] JunWang,^{*,¶}
RanMeng,^{*,§} JunXie,^{*,†,‡}

[†]Department of Cardiology, Nanjing Drum Tower Hospital, the Affiliated Hospital of Nanjing University Medical School, Nanjing University, No. 321 Zhongshan Road, Nanjing 210008, China

[‡]Department of Cardiology, Nanjing Drum Tower Hospital, Clinical College of Nanjing Medical University, No. 321 Zhongshan Road, Nanjing 210008, China

[§]Department of Endocrinology, Nanjing Drum Tower Hospital, The Affiliated Hospital of Nanjing University Medical School, Nanjing University, No. 321 Zhongshan Road, Nanjing 210008, China

[¶]Department of Emergency, Nanjing Drum Tower Hospital, The Affiliated Hospital of Nanjing University Medical School, Nanjing University, No. 321 Zhongshan Road, Nanjing 210008, China

[⊥]State Key Laboratory of Bioelectronics, School of Biological Science and Medical Engineering, Southeast University, No. 2, Sipailou, Nanjing 210096, China

[#]Department of Radiology, Nanjing Drum Tower Hospital, The Affiliated Hospital of Nanjing University Medical School, Nanjing University, No. 321 Zhongshan Road, Nanjing 210008, China

*Email: wjgaogou@aliyun.com. Phone/Fax: 86-25-68182812.

*Email: mengran-apple@hotmail.com. Phone/Fax: 86-25-68182812.

*Email: xiejun@nju.edu.com. Phone/Fax: 86-25-68182812

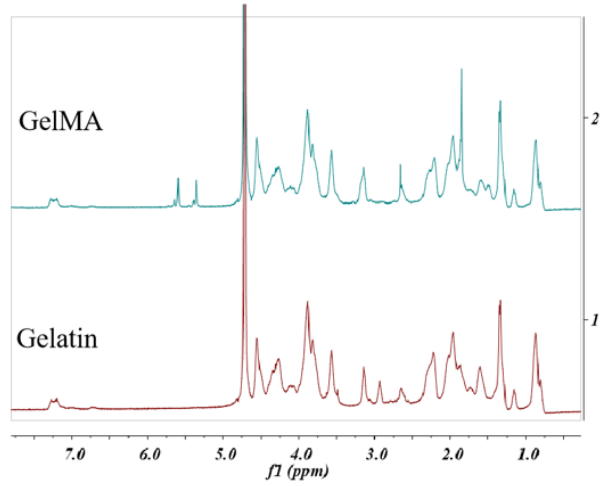


Figure S1. The ^1H NMR spectra of GelMA and Gelatin. Gelatin and synthesized GelMA were dissolved in D_2O and the structure was analyzed by proton nuclear magnetic resonance (^1H -NMR).

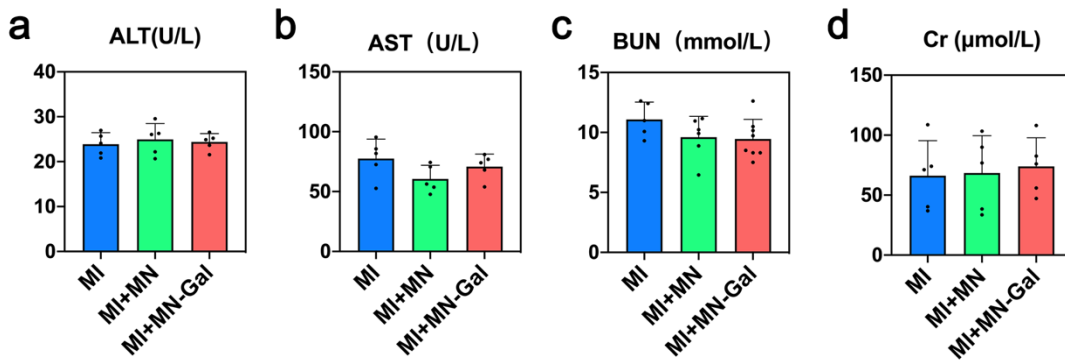


Figure S2. The effect of MN-Gal patch on liver and kidney function. (a) Serum ALT, (b) AST, (c) SCr, and (d) BUN, which revealed the rats' hepatic and renal function, were evaluated at the endpoint (28 days after MI). $n \geq 5$ animals per group. All data were presented as Means \pm SD. Comparisons between three groups were performed using one-way ANOVA, followed by Tukey's multiple comparisons test.

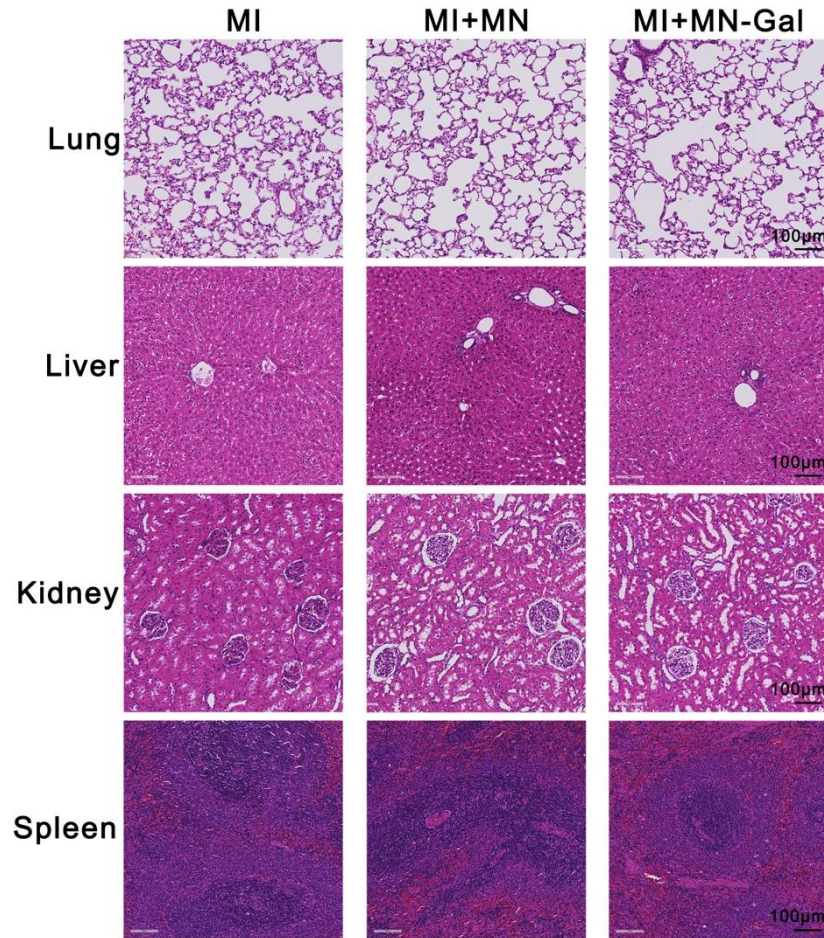


Figure S3. The effect of MN-Gal patch on other organs besides the heart. Representative H&E staining images of lung, liver, kidney and spleen tissue. Scar bar: 100µm.

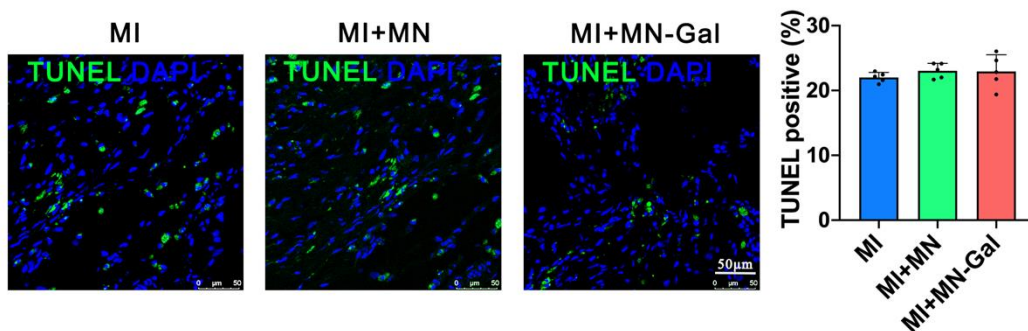


Figure S4. The effect of MN-Gal patch on cardiac apoptosis. Representative fluorescent micrographs showing the presence of TUNEL⁺ apoptotic cells (green) in the MI hearts at the endpoint (scale bar: 50µm.). Quantify the TUNEL⁺ cells to total cells ratio. n≥5 animals per group. All data were presented as Means ± SD. Comparisons between three groups were performed using one-way ANOVA, followed by Tukey's multiple comparisons test.